

IN THE CLAIMS

For the convenience of the Examiner, all pending claims of the present Application are shown below whether or not an amendment has been made.

Please amend the claims as follows.

1. (Canceled).

2. (Previously presented) The method of Claim 3, wherein determining comprises receiving management traffic on a path indicating a degradation or loss of signal on the path.

3. (Currently amended) In a TDM network having a plurality of switchable paths to a common destination, a method comprising:

receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source, each one of said paths having a receive circuit;

configuring a TDM switch to provide a route to a common destination for each one of the paths;

determining a qualified copy of the traffic, before the TDM traffic reaches the TDM switch; and

discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to a common destination, wherein determining comprises detecting a loss of a keep-alive signal at one of the respective receive circuits.

4. (Currently amended) In a TDM network having a plurality of switchable paths to a common destination, a method comprising:

receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source, each one of said paths having a receive circuit;

configuring a TDM switch to provide a route to a common destination for each one of the paths;

determining a qualified copy of the TDM traffic, before the TDM traffic reaches the TDM switch; and

discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to the common destination, wherein determining is based upon the following criteria:

alarm indication signal (AIS),

loss of pointer (LOP), or

missing terminating circuit card; thereafter

bit error rate (BER) exceeding approximately 10^{-3} in the path; thereafter

signal degradation (SD) resulting from a BER exceeding approximately 10^{-9} .

5. (Previously presented) The method of Claim 3, wherein discarding comprises setting a kill-bit to indicate whether the traffic should be switched through or discarded.

6. **(Currently amended)** In a TDM network having a plurality of switchable paths to a common destination, a method comprising:

receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source, each one of said paths having a receive circuit ;

configuring a TDM switch to provide a route to a common destination for each one of the paths;

determining a qualified copy of the traffic before the copies reach the TDM switch; and

discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to the common destination, wherein determining comprises communicating information related to qualifying between the respective receive circuits.

7. **(Previously presented)** The method of Claim 6, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

8. **(Previously presented)** The method of Claim 6, wherein the TDM traffic is carried in VT or STS-1 formats within a transmission signal.

9. **(Previously presented)** The method of Claim 6, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

10. ~~(Canceled)~~

11. ~~(Previously presented)~~ The apparatus of Claim 12, wherein each receive circuit is operable to qualify TDM traffic by receiving management traffic on a path indicating a degradation or loss of signal on the path.

C1 12. ~~(Currently amended)~~ In a TDM network having a plurality of paths to a destination, an apparatus comprising:

a plurality of receive circuits coupled to monitor signals on respective predetermined paths originating at the traffic source to a TDM switch, each receive circuit operable to set a kill-bit to accompany TDM traffic sent to the TDM switch to indicate whether the TDM traffic should be switched or discarded before the TDM traffic reaches the TDM switch;

a memory coupled to the receive circuits and operable to receive the TDM traffic with accompanying kill-bits, the memory operable to store the TDM traffic having an accompanying kill-bit that has not been set, the memory further operable to discard the TDM traffic having an accompanying kill-bit that has been set; and

a communication path between the receive circuits and operable to convey qualifying information for the paths, wherein each receive circuit is operable to qualify TDM traffic by detecting a loss of a keep-alive signal of another receive circuit.

13. (Currently amended) In a TDM network having a plurality of paths to a destination, an apparatus comprising:

a plurality of receive circuits coupled to monitor signals on respective predetermined paths originating at the traffic source to a TDM switch, each receive circuit operable to set a kill-bit to accompany TDM traffic sent to the TDM switch to indicate whether the TDM traffic should be switched or discarded before the TDM traffic reaches the TDM switch;

a memory coupled to the receive circuits and operable to receive the TDM traffic with accompanying kill-bits, the memory operable to store the TDM traffic having an accompanying kill-bit that has not been set, the memory further operable to discard the TDM traffic having an accompanying kill-bit that has been set; and

a communication path between the receive circuits and operable to convey qualifying information for the paths, wherein each receive circuit qualifies the TDM traffic based upon the following criteria:

- alarm indication signal (AIS),
- loss of pointer (LOP), or
- missing terminating circuit card; thereafter
- bit error rate (BER) exceeding approximately 10^{-3} in the path; thereafter
- signal degradation (SD) resulting from a BER exceeding approximately 10^{-9} .

14. (Currently amended) In a TDM network having a plurality of paths to a destination, an apparatus comprising:

a plurality of receive circuits coupled to monitor signals on respective predetermined paths originating at the traffic source to a TDM switch, each receive circuit operable to set a kill-bit to accompany TDM traffic sent to the TDM switch to indicate whether the TDM traffic should be switched or discarded before the TDM traffic reaches the TDM switch;

a memory coupled to the receive circuits and operable to receive the TDM traffic with accompanying kill-bits, the memory operable to store the TDM traffic having an accompanying kill-bit that has not been set, the memory further operable to discard the TDM traffic having an accompanying kill-bit that has been set; and

a communication path between the receive circuits and operable to convey qualifying information for the paths, wherein each receive circuit is further operable to:

receive TDM traffic associated with a virtual tributary (VT);

determine if the TDM traffic is pass-through based on the VT; and

if the TDM traffic is not pass-through, set an accompanying kill-bit if the receive circuit is stand-by for the particular VT.

15. (Previously presented) The apparatus of Claim 14, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

16. ~~(Previously presented)~~ The apparatus of Claim 14, wherein the TDM traffic is carried in VT or STS-1 formats within a transmission signal.

u 17. ~~(Previously presented)~~ The apparatus of Claim 14, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each receive circuit to the destination.

18. ~~(Canceled).~~

19. (Previously presented) The program of Claim 20, wherein determining comprises receiving management traffic at the receive circuit indicating a degradation or loss of signal on a corresponding path.

20. (Currently amended) A program embodied in computer-readable media and operable to perform the following steps:

receiving, at a receive circuit, TDM traffic from a traffic source as one of a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source;

determining, at the receive circuit and before the TDM traffic reaches the TDM switch, whether the received copy is a qualified copy of the traffic;

discarding the received copy if the received copy is not the qualified copy; and

communicating the received copy from the receive circuit to a TDM switch for routing to a destination if the received copy is the qualified copy, wherein determining comprises detecting a loss of a keep-alive signal.

21. **(Currently amended)** A program embodied in computer-readable media and operable to perform the following steps:

receiving, at a receive circuit, TDM traffic from a traffic source as one of a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source;

determining, at the receive circuit and before the TDM traffic reaches the TDM switch, whether the received copy is a qualified copy of the traffic;

discarding the received copy if the received copy is not the qualified copy; and

communicating the received copy from the receive circuit to a TDM switch for routing to a destination if the received copy is the qualified copy, wherein determining is based upon the following criteria:

alarm indication signal (AIS),
loss of pointer (LOP), or
missing terminating circuit card; thereafter
bit error rate (BER) exceeding approximately 10^{-3} in the path; thereafter
signal degradation (SD) resulting from a BER exceeding approximately 10^{-9} .

22. **(Previously presented)** The program of Claim 21, wherein discarding comprises setting a kill-bit to indicate whether the traffic should be switched through or discarded.

23. **(Currently amended)** A program embodied in computer-readable media and operable to perform the following steps:

receiving, at a receive circuit, TDM traffic from a traffic source as one of a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source;

determining, at the receive circuit and before the TDM traffic reaches the TDM switch, whether the received copy is a qualified copy of the traffic;

discarding the received copy if the received copy is not the qualified copy; and

communicating the received copy from the receive circuit to a TDM switch for routing to a destination if the received copy is the qualified copy, wherein determining comprises communicating information related to qualifying to another receive circuit.

C 24. **(Previously presented)** The program of Claim 23, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

25. **(Previously presented)** The program of Claim 23, wherein the TDM traffic is carried in VT or STS-1 formats within a transmission signal.

26. **(Previously presented)** The program of Claim 23, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each of the paths to the destination.

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27. (Currently amended) In a TDM network having a plurality of switchable paths to a common destination, a method comprising:

receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source, each one of said paths having a receive circuit;

configuring a TDM switch to provide a route to a common destination for each one of the paths;

determining, before the TDM traffic reaches the TDM switch, a qualified copy of the traffic; and

discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to the common destination, wherein each receive circuit is operable to:

receive TDM traffic associated with a virtual tributary (VT);

determine if the TDM traffic is pass-through based on the VT; and

if the TDM traffic is not pass-through, set an accompanying kill-bit if the receive circuit is stand-by for the particular VT.

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28. (Currently amended) In a TDM network having a plurality of paths to a destination, an apparatus comprising:

a plurality of receive circuits coupled to monitor signals on respective predetermined paths originating at the traffic source to a TDM switch, each receive circuit operable to set a kill-bit to accompany TDM traffic sent to the TDM switch to indicate whether the TDM traffic should be switched or discarded;

C1 a memory coupled to the receive circuits and operable to receive the TDM traffic with accompanying kill-bits, the memory operable to store the TDM traffic having an accompanying kill-bit that has not been set, the memory further operable to discard, before the TDM traffic reaches the TDM switch, the TDM traffic having an accompanying kill-bit that has been set; and

a communication path between the receive circuits and operable to convey qualifying information for the paths, wherein the receive circuit is further operable to determine whether to set the kill-bit based on the qualifying information.

29. **(Currently amended)** A program embodied in computer-readable media and operable to perform the following steps:

receiving, at a receive circuit, TDM traffic from a traffic source as one of a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source;

determining, at the receive circuit and before the TDM traffic reaches the TDM switch, whether the received copy is a qualified copy of the traffic;

discarding the received copy if the received copy is not the qualified copy; and

communicating the received copy from the receive circuit to a TDM switch for routing to a destination if the received copy is the qualified copy, wherein the receive circuit is one of a plurality of receive circuits, each receive circuit associated with a particular one of the paths, and each receive circuit operable to:

receive TDM traffic associated with a virtual tributary (VT);

determine if the TDM traffic is pass-through based on the VT; and

if the TDM traffic is not pass-through, set an accompanying kill-bit if the receive circuit is stand-by for the particular VT.

30. **(Previously presented)** The method of Claim 4, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

31. **(Previously presented)** The method of Claim 4, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

32. **(Previously presented)** The method of Claim 6, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

33. **(Previously presented)** The method of Claim 6, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

34. **(Previously presented)** The method of Claim 27, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

35. **(Previously presented)** The method of Claim 27, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

36. **(Previously presented)** The apparatus of Claim 13, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

37. **(Previously presented)** The apparatus of Claim 13, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

38. **(Previously presented)** The apparatus of Claim 14, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

39. **(Previously presented)** The apparatus of Claim 14, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

40. **(Previously presented)** The apparatus of Claim 28, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

41. **(Previously presented)** The apparatus of Claim 28, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

42. **(Previously presented)** The program of Claim 21, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

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43. **(Previously presented)** The program of Claim 21, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

44. **(Previously presented)** The program of Claim 23, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

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45. **(Previously presented)** The program of Claim 23, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

46. **(Previously presented)** The program of Claim 29, wherein the paths comprise a first path in a first direction around a SONET UPSR and a second path in a second direction around the SONET UPSR.

47. **(Previously presented)** The program of Claim 29, wherein the TDM switch is configured to route TDM traffic for a given virtual tributary (VT) from each respective receive circuit to the common destination.

48. (Currently amended) In a TDM network having a plurality of switchable paths to a common destination, a system comprising:

means for receiving TDM traffic from a traffic source as a plurality of copies of traffic routed along a plurality of predetermined paths originating at the traffic source, each one of said paths having a receive circuit;

means for configuring a TDM switch to provide a route to a common destination for each one of the paths;

C1 means for determining, before the TDM traffic reaches the TDM switch, a qualified copy of the traffic; and

means for discarding all copies of the traffic except for the qualified copy such that only the qualified copy is passed to the TDM switch for routing to the common destination, wherein the means for determining comprises means for detecting a loss of a keep-alive signal at one of the respective receive circuits.
